

National Aeronautics and Space Administration



# Mission to Mars

[www.nasa.gov](http://www.nasa.gov)

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# **Science, Technology, Engineering and Mathematics**

# Mars Moons



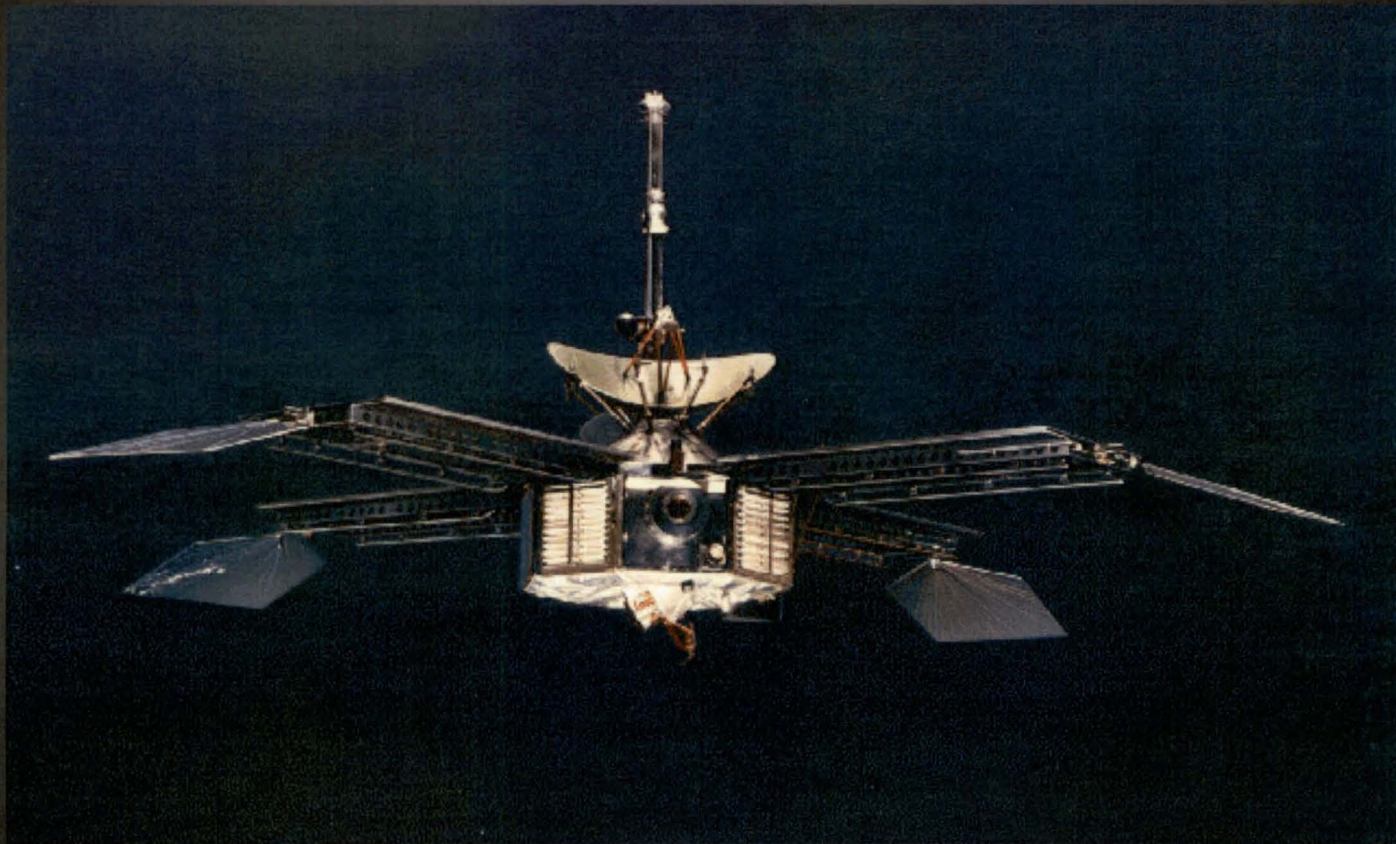
**Phobos**



**Deimos**



# Mariner 4 (1964)



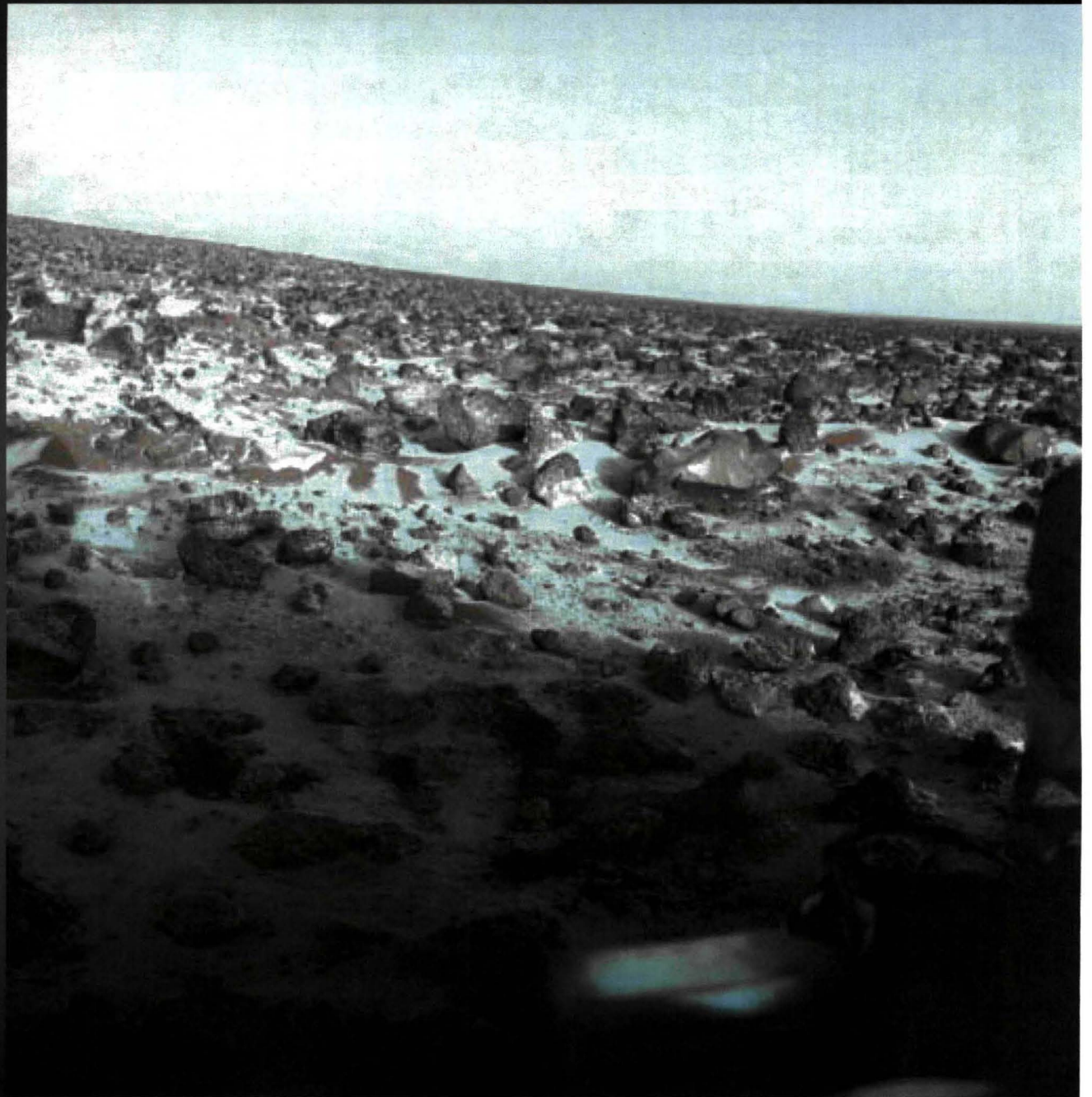


**Viking 2  
on Mars  
(1975)**





**Viking 2 Image  
showing ice on  
Mars**

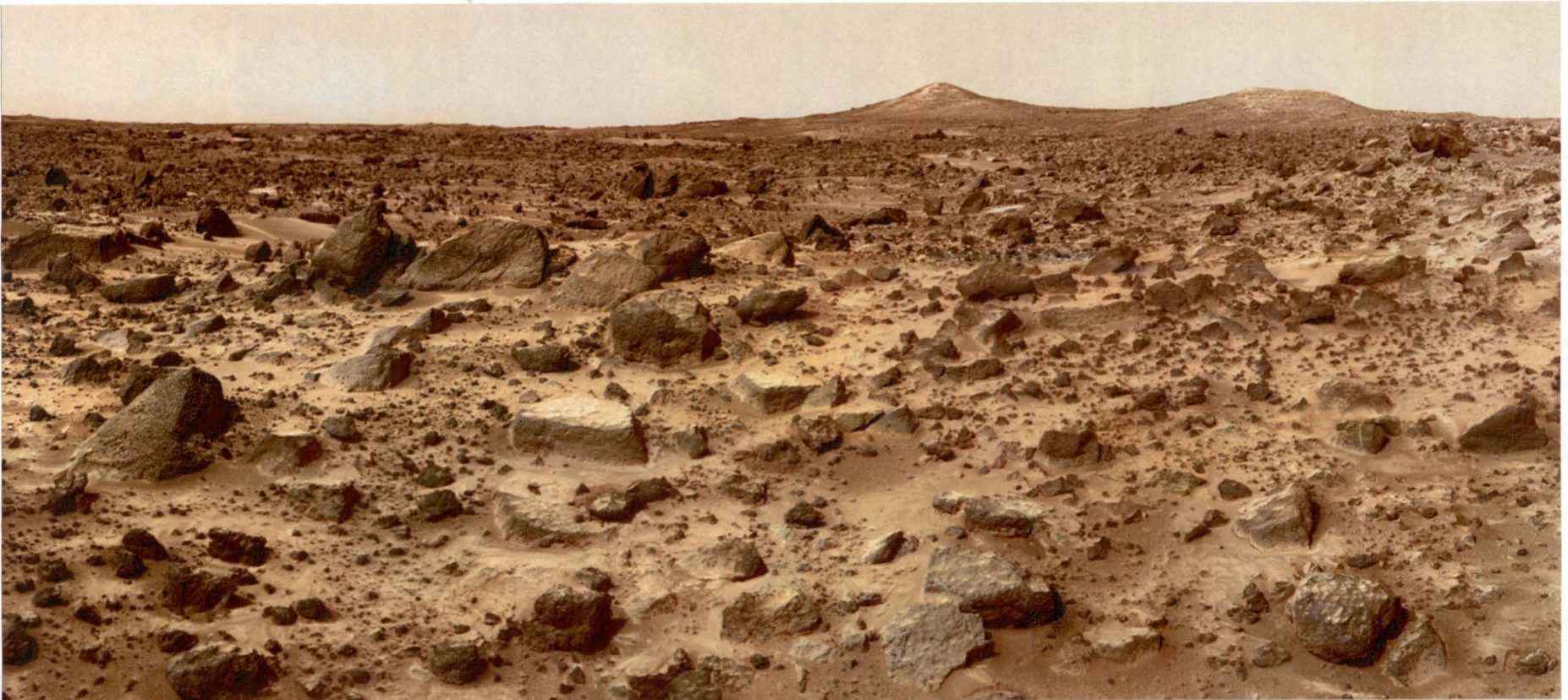




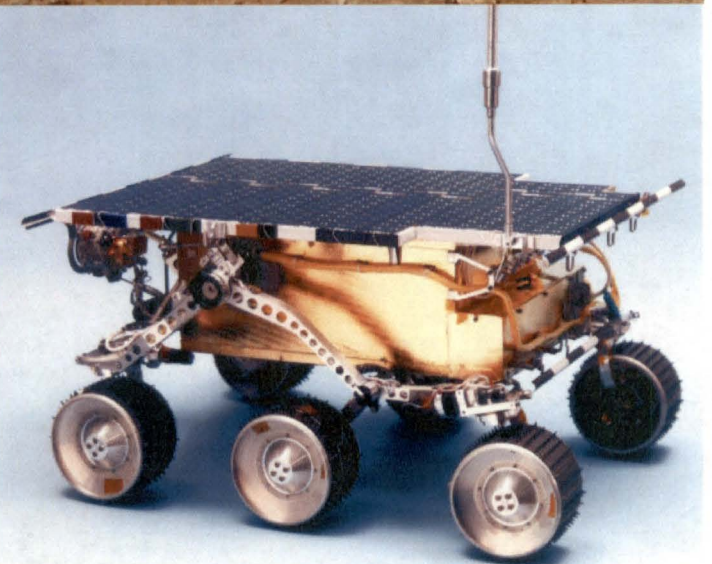


**Mars Global  
Surveyor  
(1996)**



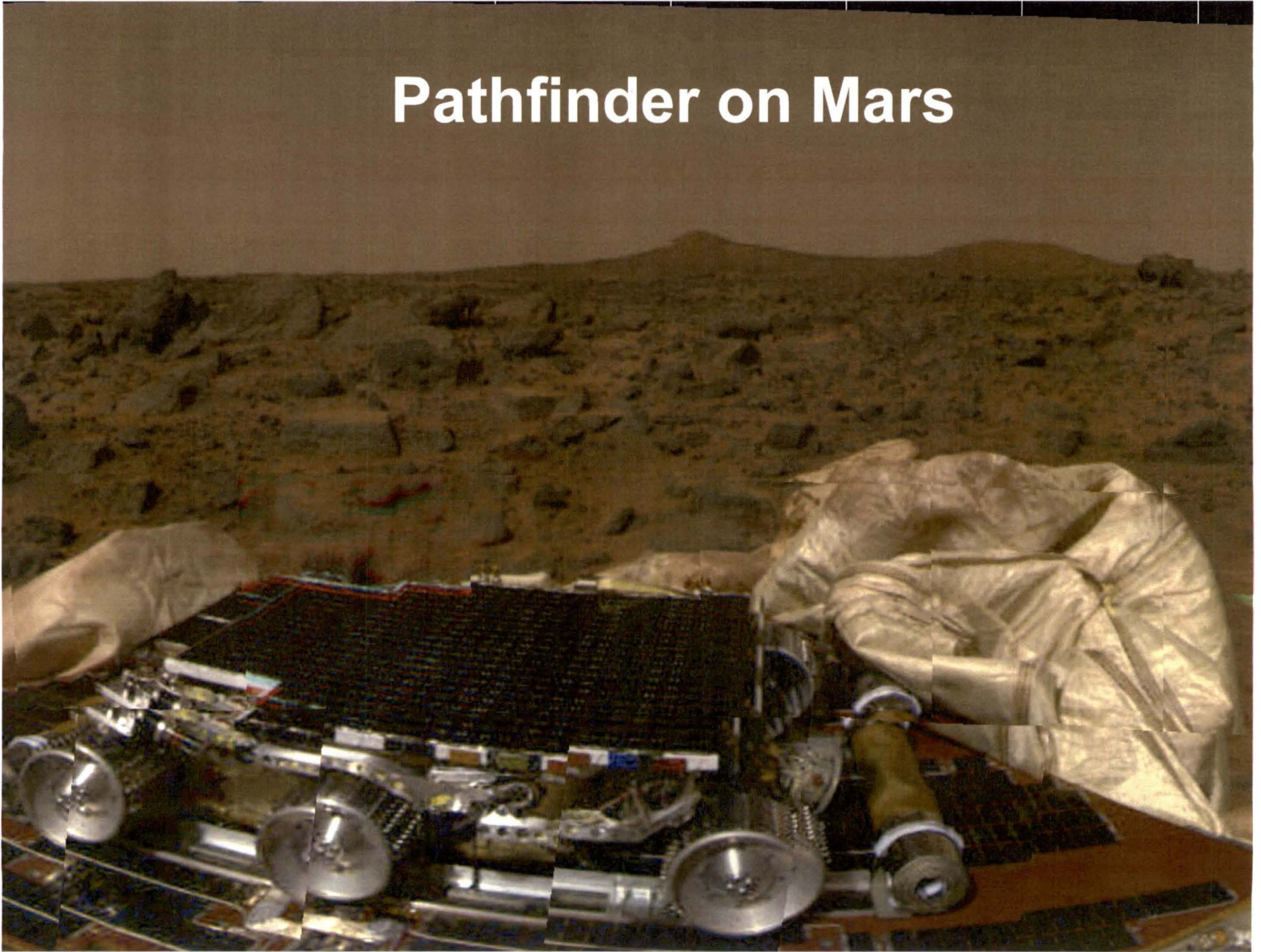


## Mars Pathfinder (1996)





# Pathfinder on Mars





# Mars Odyssey (2001)



Odyssey



# Mars Exploration Rovers

(Spirit and Opportunity)



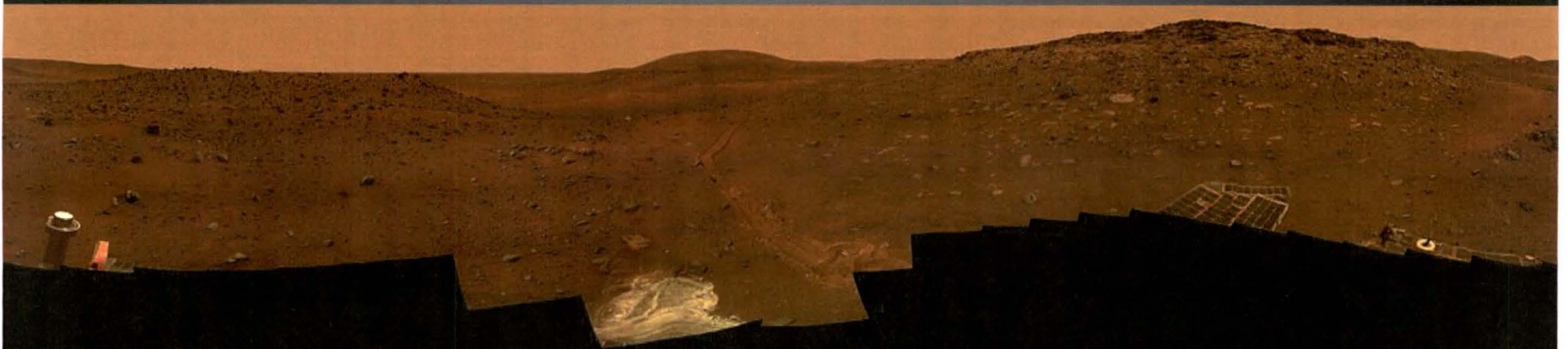
Five Years on Mars



# Spirit Rover Visited Sites



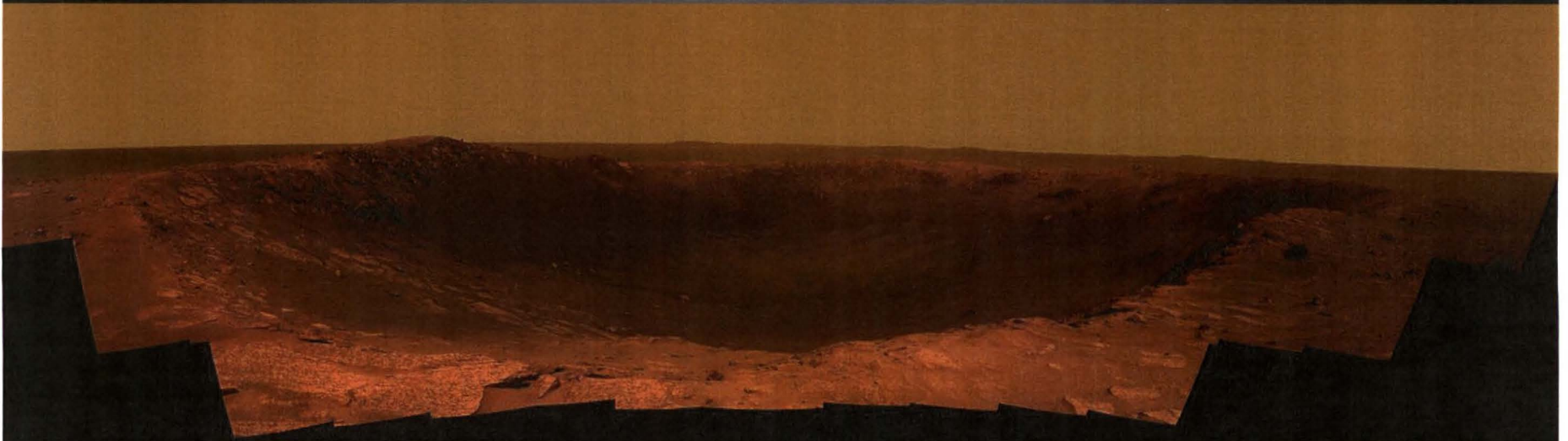
Bonneville Crater



Stationary location view



# Opportunity Rover Visited Sites



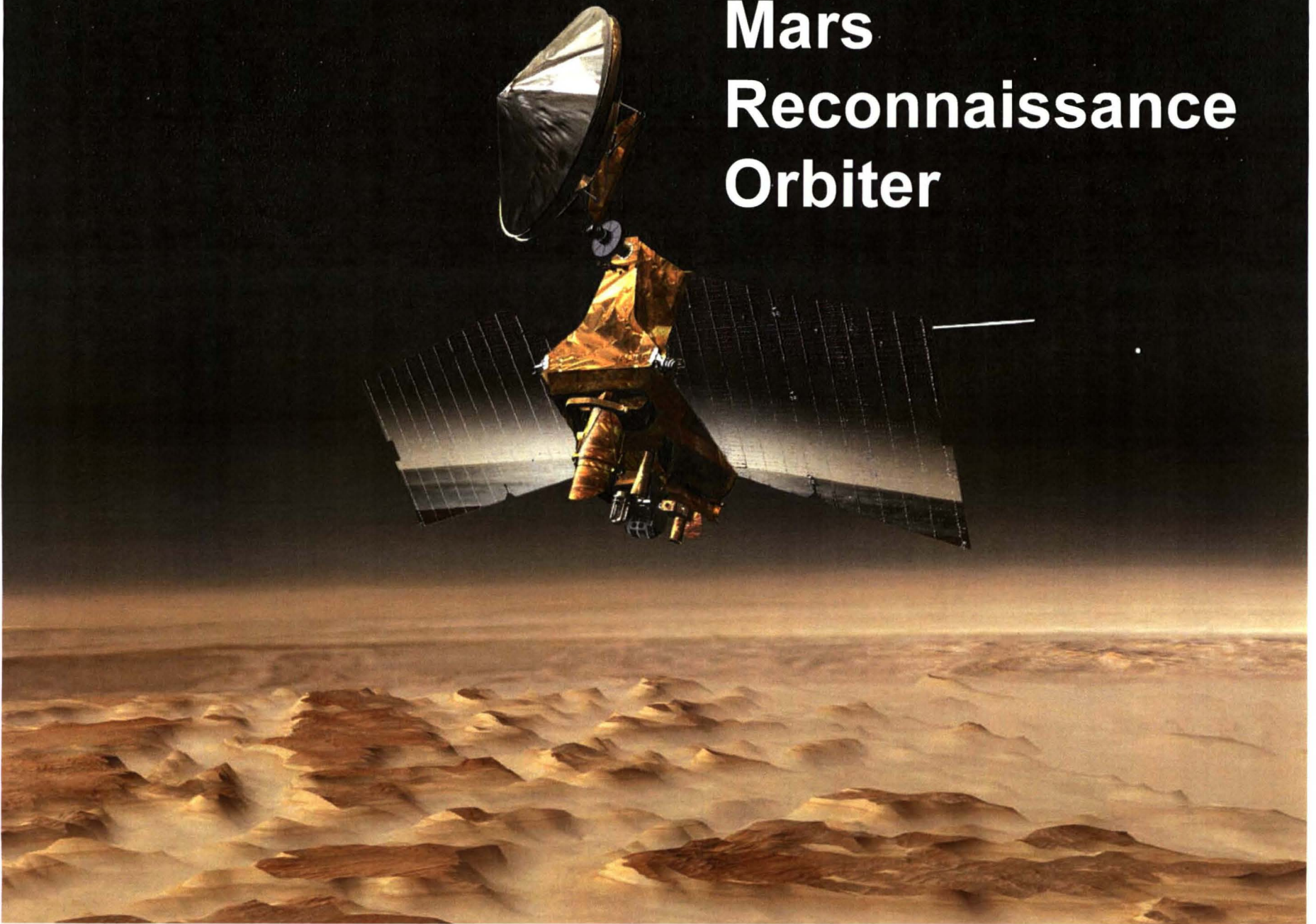
Santa Maria Crater



Victoria Crater



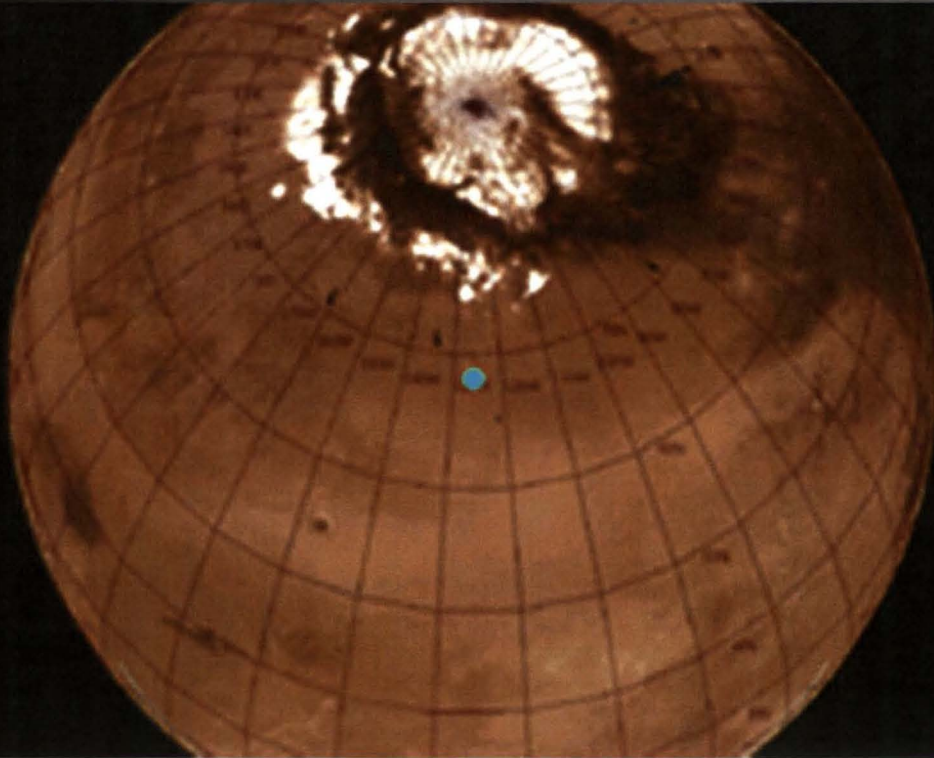
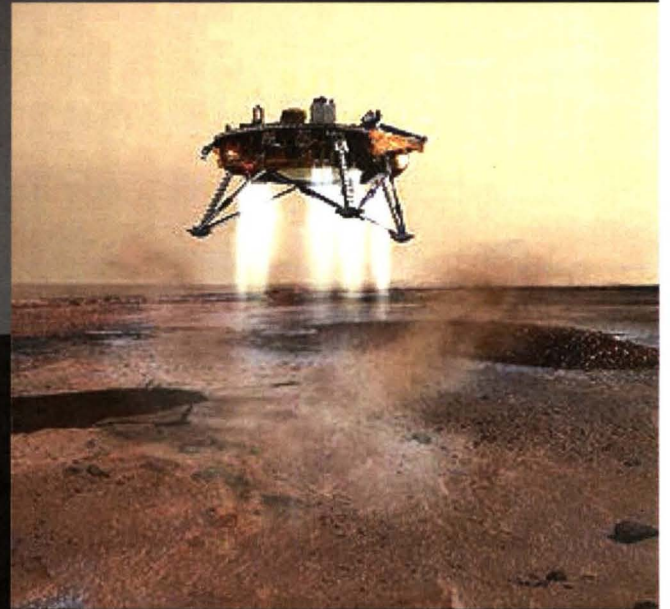
# Mars Reconnaissance Orbiter





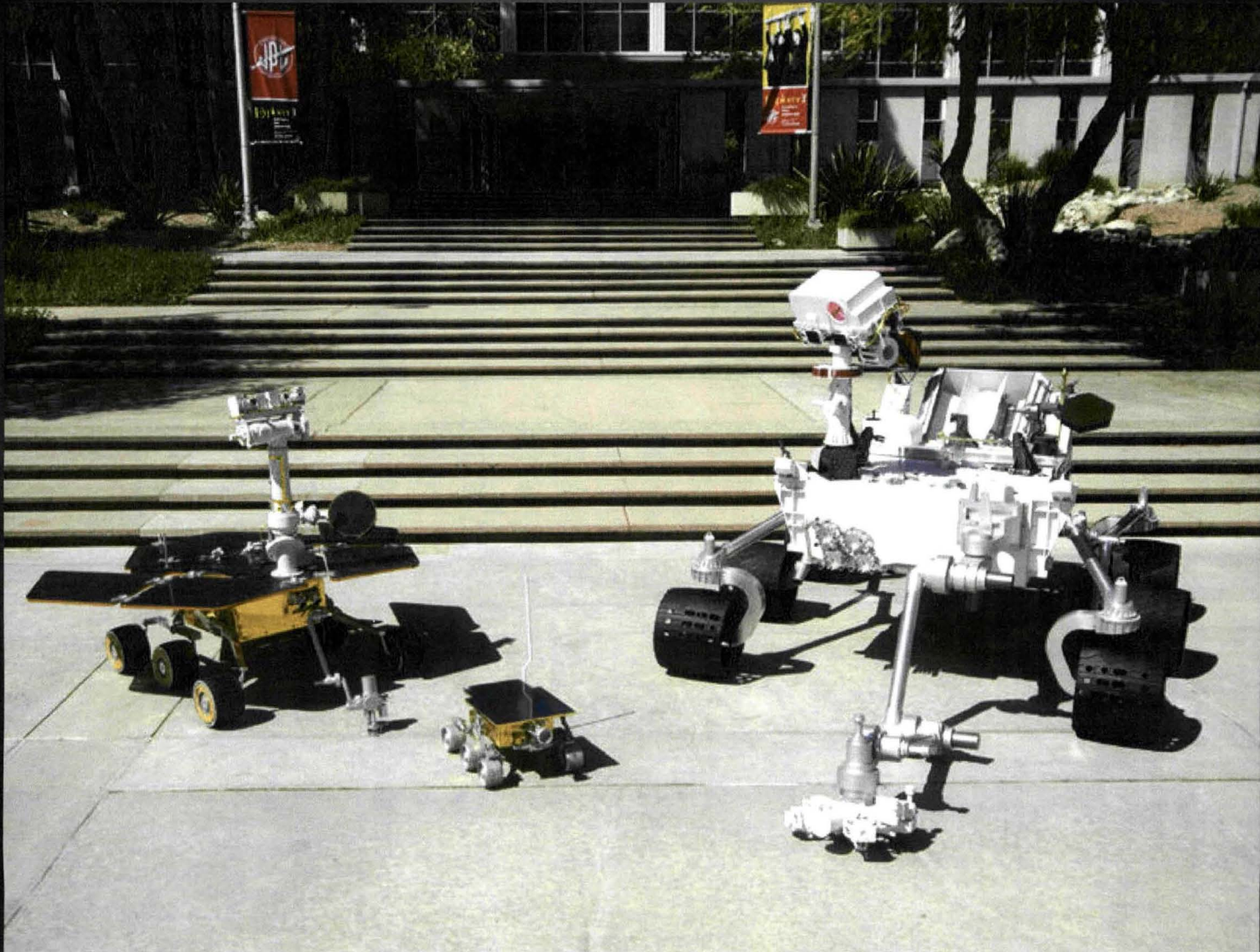
# Mars Phoenix Lander

Landing Site near the  
north pole



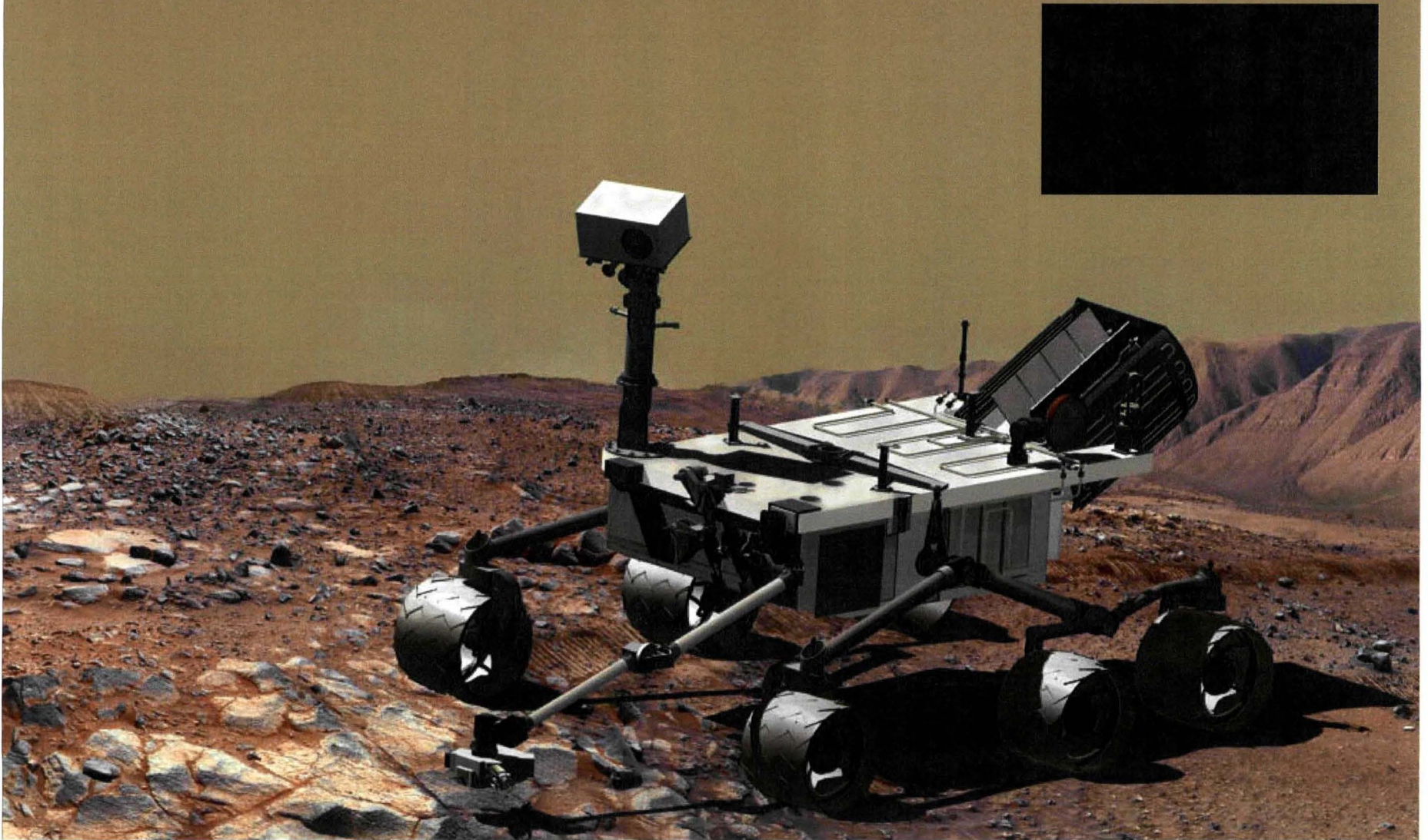


# Mars Rover Size Comparison



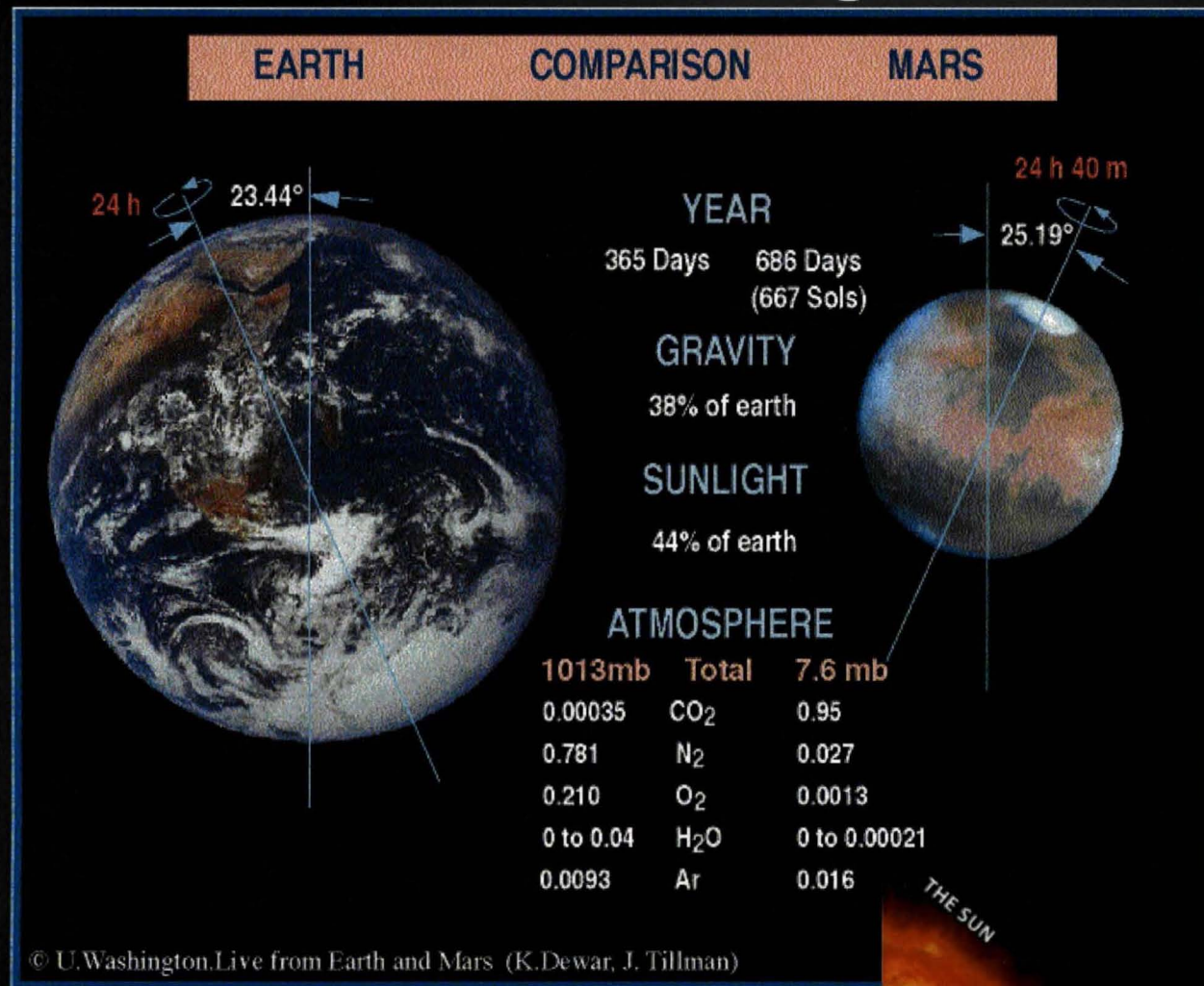


# Mars Science Laboratory

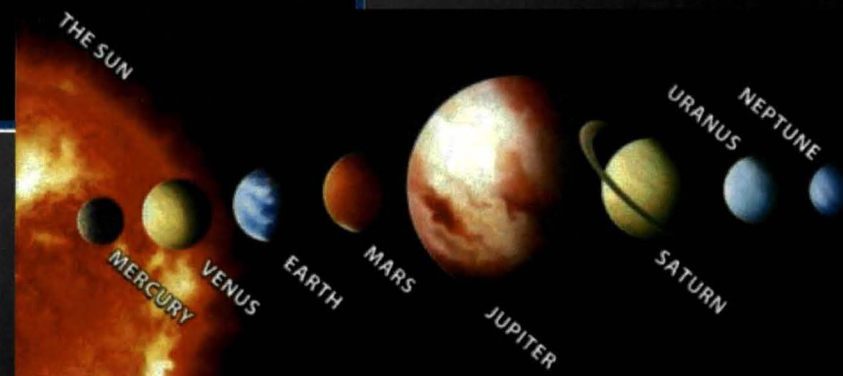




# How to get to Mars ?

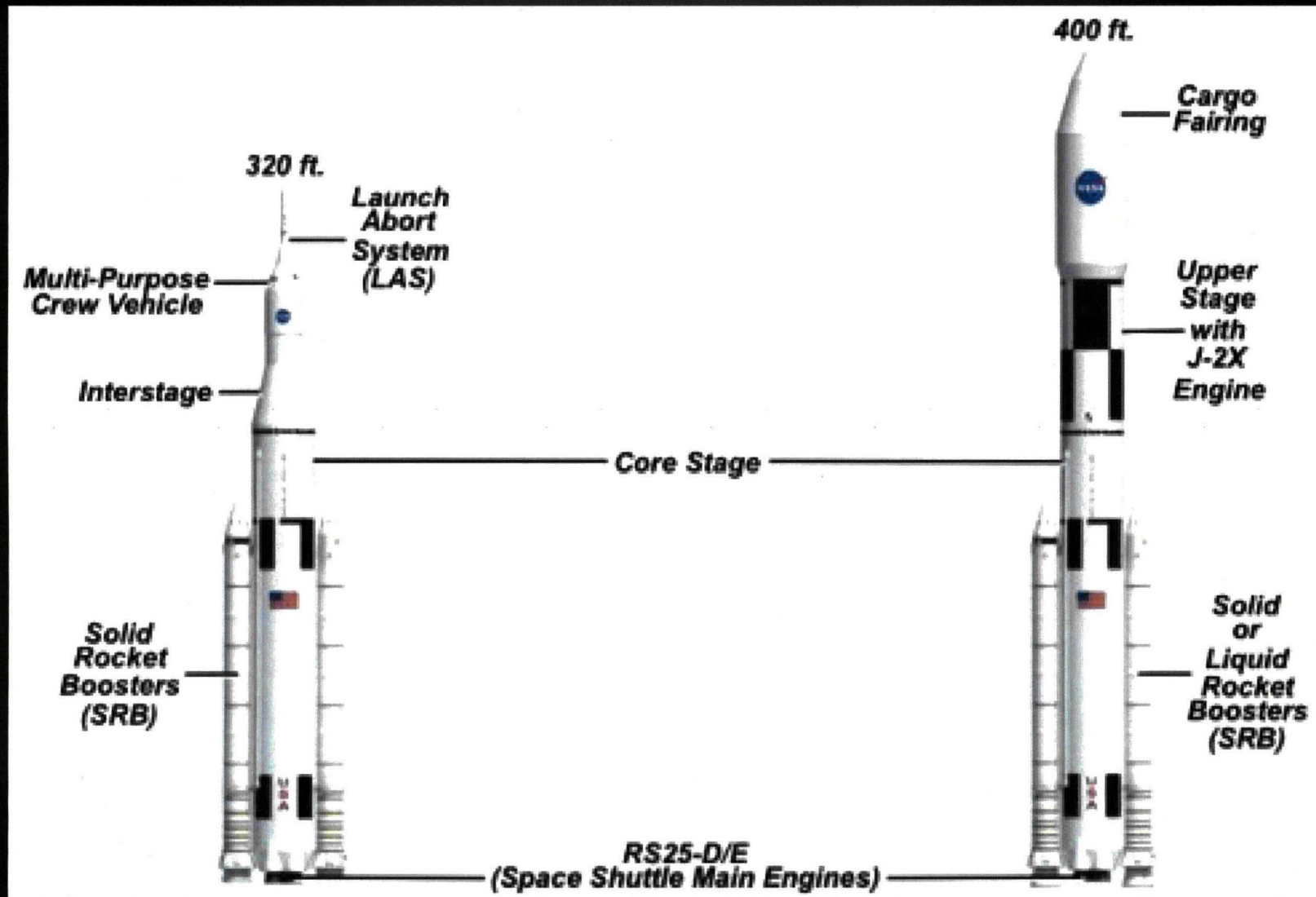


Mars, courtesy of:  
P. James and NASA



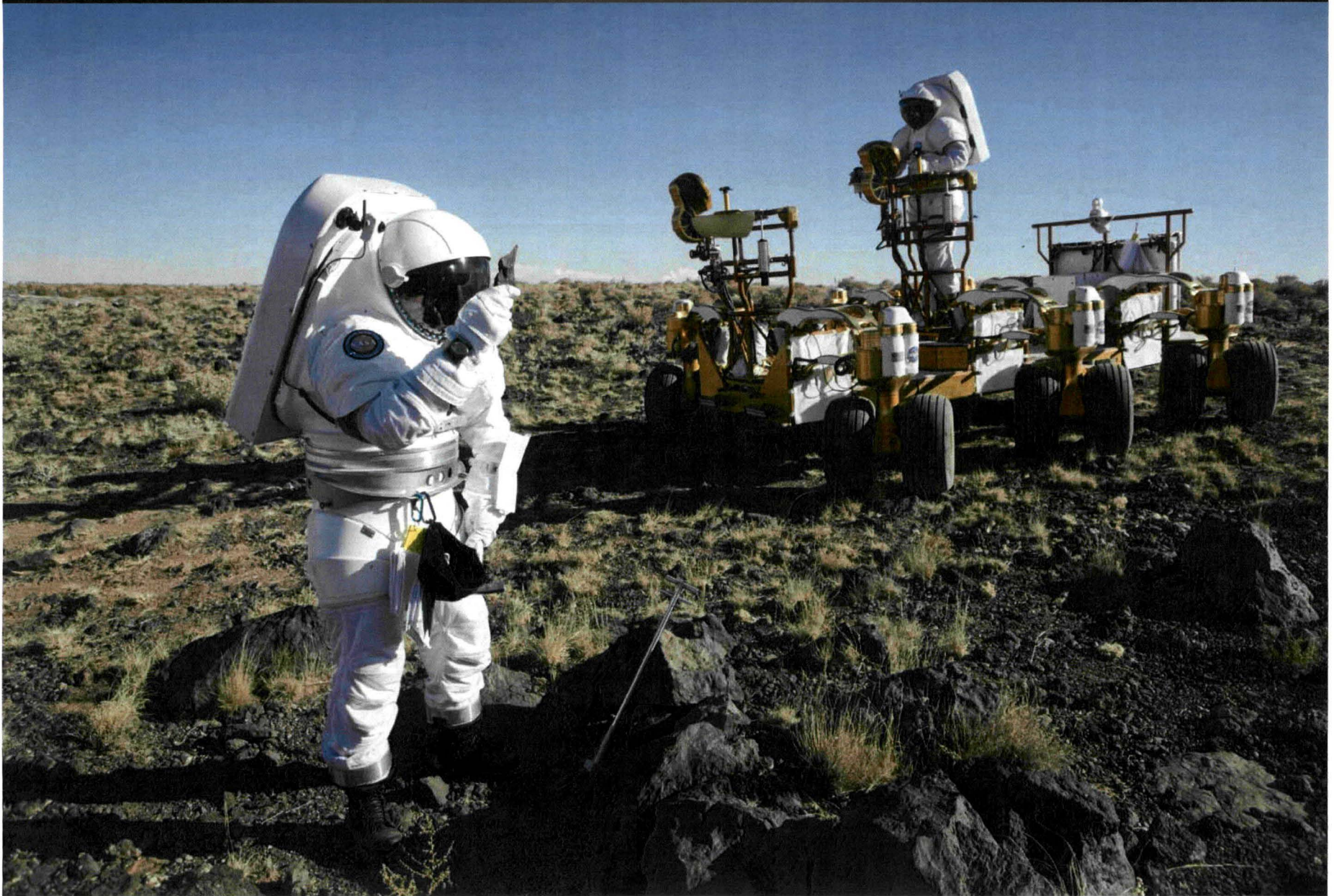


# Manned Vehicle





# Training on Earth for Mars Mission: NASA





# Training on Earth for Mars Mission: Others





# International Collaborations

1. Scientists and engineers from many countries collaborate on Curiosity's mission. People all over the world will benefit from the new knowledge the rover sends back from Mars.
2. Spain, Russia and Canada have contributed scientific investigations and associated experiment instruments for NASA's rover. Tracking stations in Australia, Spain and California will provide two-way communication with the spacecraft.
3. In the U.S. alone, more than 800 people across the country have directly contributed to planning, designing, building, testing and assembling hardware for the Mars Science Laboratory.
4. Scientists and engineers from university and other research labs came together many years before the mission was even proposed to figure out the main questions we want to ask about Mars, and what kinds of experiments are needed on the surface to ask those questions.



# Specialists who joined together to create the mission:

1. Geologists , chemists and other scientists work together to boil down the main questions we have about Mars' habitability. What are the measurements that will give us answers?
2. Engineers, instrument designers, laser physicists and other technical experts create the instruments that will make the measurements on Mars. Robotics and other engineers design the rover that will carry the instruments.
3. Electrical power specialists and thermal engineers determine how to give each part of the rover the power it needs to function, and how to keep everything at an optimum operating temperature in Mars' frigid environment.
4. Computer software and hardware specialists and technicians create the electronics and other systems inside each instrument.
5. Testing engineers and technicians create environments that mimic Mars so the rover systems can be tested in a realistic way.
6. Rocket scientists design the thrusters, big and small, that deliver Curiosity from Earth to the surface of Mars.
7. Many other people in different careers contribute to the mission, including people who design and sew the thermal blankets that protect sensitive areas of the rover, people who carefully thread thousands of wires and cables through the rover linking its systems, editors and writers who assemble the documentation about the spacecraft, and the people who clean the spacecraft before launch so we don't contaminate Mars with microbial life from Earth.



# Questions ???

National Aeronautics and Space Administration



## Mission to Mars

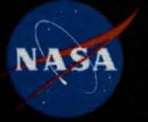
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# KENNEDY SPACE CENTER

## STUDENT PROGRAMS

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Presented by:

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# KSC PATHWAYS PROGRAM PARTICIPATION



## **Interns (Formerly called SCEP/STEP or Co-Ops)**

Students currently enrolled in high school, vocational/trade school, and college or university.

## **Recent Graduates (Formerly called FCIPs)**

Veterans within six years of receiving their degree and non-veterans within two years of receiving their degree



## **PMFs**

Individuals who are completing, or have completed within the past two years, a qualifying advanced degree

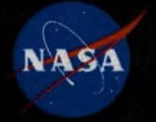




# RECENT GRADUATE OR PMF PROGRAM APPLICATIONS

- Learn more and apply through [usajobs.gov/StudentsandGrads](http://usajobs.gov/StudentsandGrads)
- NASA plans to bring on about 100 Recent Graduates between January and October of 2013
- KSC has not identified these positions but they will be posted on usajobs and on our KSC website (a redirect from <http://coop.ksc.nasa.gov>)

The screenshot shows the USAJOBS website interface. At the top, there is a navigation bar with links: Home, Search Jobs, My Account, and Resource Center. To the right of these links is a button that says 'SIGN IN OR CREATE AN ACCOUNT'. Below the navigation bar is the USAJOBS logo, which includes the text 'WORKING FOR AMERICA'. The main heading on the page is 'Welcome Students and Recent Graduates'. Below this heading is a large graphic for the 'PATHWAYS' program. The graphic features the word 'PATHWAYS' in large, bold, serif capital letters. Above the letters are three stars and a stylized blue and red swoosh. Below 'PATHWAYS' is the text 'FOR STUDENTS & RECENT GRADUATES TO FEDERAL CAREERS'. To the right of the graphic, there is a text block that reads: 'COMING SOON: Starting in the summer of 2012, newly streamlined programs will help students and recent graduates get started in the Federal workforce. Under President Obama's leadership, the Federal government has taken steps to help students and recent graduates find job opportunities. Because these programs are new, it may take some time before job opportunities are available. We encourage you to visit this site periodically, since new opportunities will appear as agencies begin to hire under these programs.' At the bottom right of the graphic, there is a blue button with the text 'Search Jobs' and a right-pointing arrow.



# INTERNSHIP EMPLOYMENT PROGRAM (IEP)

- Interns (previously co-ops)
  - Degree must be related to field of work
  - Students conduct rotations between work and school through graduation
  - Enhances their experience at school as well as at work
  - Integration into full-time work environment
  - Eligible for conversion into full-time employment after graduation
- Interns w/NTE\* (previously KIP)
  - Degree may or may not be related to field of work
  - Students generally on 90 day appointments
  - Short term exchange to gain work experience
  - Not eligible for conversion into full-time employment after graduation

\*NTE = Not to exceed or expiration date of appointment





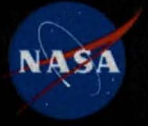
# IEP REQUIREMENTS

Requirements for both Internships (interns and interns w/NTE)

1. United States Citizen
2. Attend an accredited college or university on at least a half time basis (Go to <http://www.abet.org/> for list of colleges & universities)
3. Pursuing a science, engineering, math or business field of study
4. Achieved good scholastic standing (Cumulative GPA 2.9 or higher)
5. Meet security and medical requirements

Additional requirements for Interns (not interns w/NTE)

1. Successfully completed at least 30 semester hours for undergraduate opportunities (for interns and not interns w/NTE)
2. Ability to work alternating semesters while a n intern
3. Enrolled in the University's Co-op Program (if Co-op Office does not exist, enrolled with Career Services)\*



## IEP BENEFITS

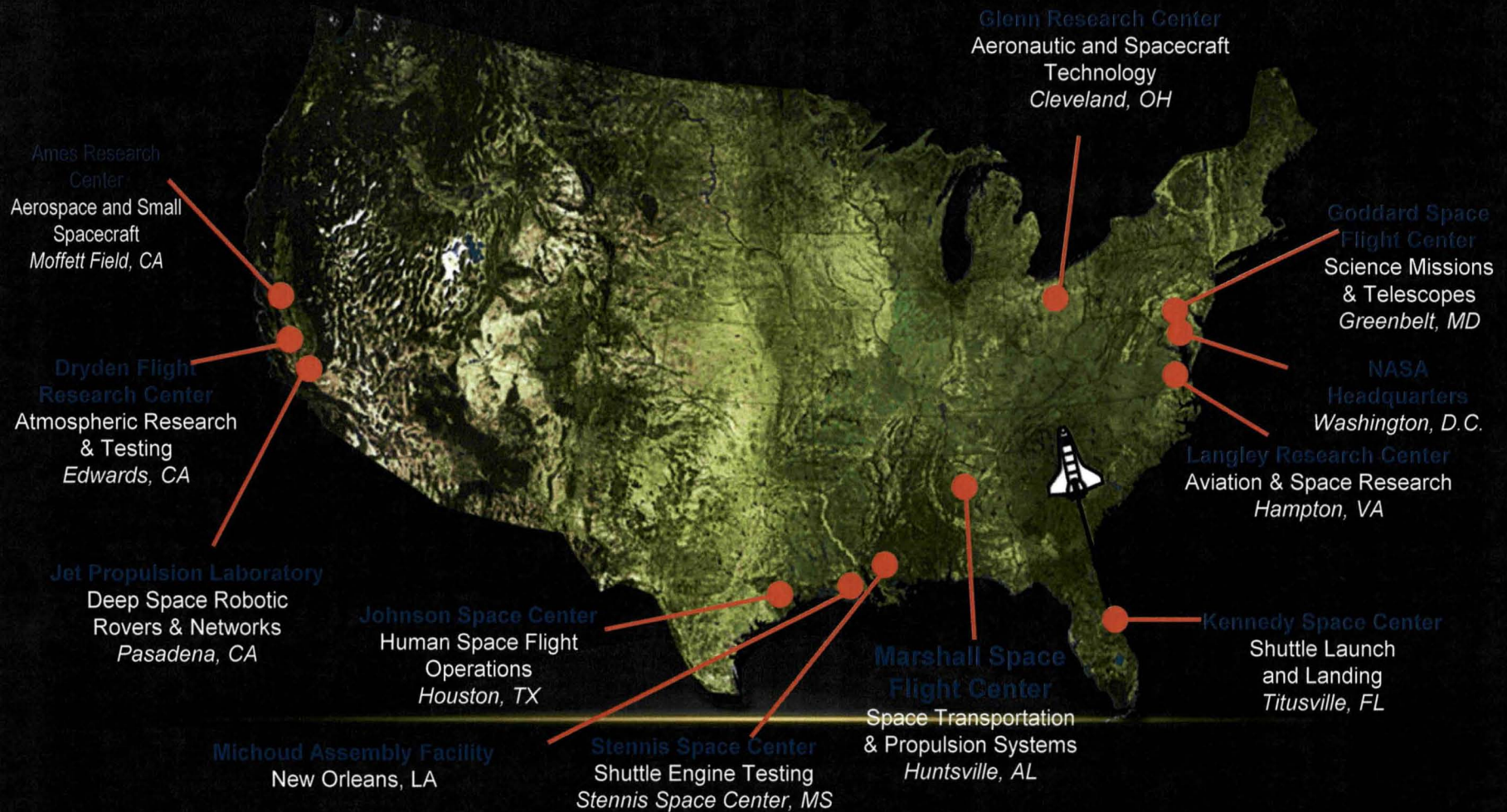
- **Salaries/Pay**
  - Undergraduate students GS-4 thru GS-6 (\$13.41 – \$16.73)
  - Graduate students GS-7 thru GS-9 (\$18.59 - \$22.74)
  - PhD Students GS-9 thru GS-11 (\$22.74 – \$27.51)
- Travel reimbursement - Trip to and from school each working tour
- Eligible for conversion into full time employment after complete program requirements
- Promotion eligibility while in the Co-op Program
- Awards
- Health Insurance (can be carried over when student is back at school)
- Life Insurance
- Federal Employees Retirement System (FERS)
- Thrift Savings Plan (TSP) – similar to 401K in private sector
- Annual Leave
- Sick Leave
- Military Leave
- Federal Holidays

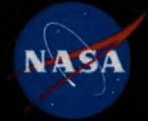




# ONE NASA

National Aeronautics and Space Administration Created by Congress in 1958





# IEP APPLICATIONS

- Website is being revised
- Applications should be open from August through October for positions starting in January
- Go to the Eligibility and Apply tab on our website
- Follow the step by step instructions

JOHN F. KENNEDY SPACE CENTER

KSC HOME KSC SEARCH MULTIMEDIA NASA CENTERS

**KSC COOPERATIVE EDUCATION PROGRAM**

**Welcome Students**

At KSC, a flexible, mission-focused workforce is the key to our success. KSC serves as NASA's Center of Excellence for both launch and payload processing systems. In addition to manned missions, KSC coordinates all launches of NASA payloads on Expendable Launch Vehicles (ELV).

KSC is rich with tradition and interesting stories. It is from KSC that Neil Armstrong and the rest of the Apollo 11 crew lifted off on the way to becoming the first humans to step foot on the moon. Where else can you walk the footsteps of such tradition? Where else can you watch fellow Americans leave this Earth and fulfill a centuries old dream of reaching the stars?

Today, NASA is on the edge of a bold new challenge. NASA is creating an exciting future where it will develop capabilities for the next generation to explore space, expand commercial access to space for crew and cargo, and develop many more missions to explore our home planet, the solar system and the universe beyond. We want you to be a part of this great legacy, by joining our team.

Wishing you success in your career endeavors!

Here is our Co-op Brochure.

*(Double click video to view full screen)*

So you thought working at NASA is BORING

Transcript for Recruitment video

A Product of the Information Technology & Communications Services Directorate, Michael J. Bolger, Director  
Web Development: IMCS Contract - NASA Web Team  
• Using this page: Usability Hints and Tips

Editor: Josephine Perera  
NASA Official: Josephine Perera  
Last Updated: September 1, 2011





Web address:

<http://pathways.ksc.nasa.gov>

( a redirect from <http://coop.ksc.nasa.gov> & <http://kip.ksc.nasa.gov> )



## **One Stop Shopping Initiative (OSSI)**

Apply for non-federal NASA internships and fellowships here. Click the drop down menu on the right to start your application process. Be sure to select either U.S. Citizen or Non-U.S. Citizen.

<http://intern.nasa.gov>





# QUESTIONS?

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